Overall, the telepresence program was effective and highly usable for many remote attendees. Beams were also used opportunistically to support other functions at the conference, e.g., panel discussants. Through our explorations, we also learned about some important challenges that should be addressed in future telepresence programs.

**Remote Attendance:** In total, we had 2 people connect into workshops and 16 people connect into the main conference program. One person used telepresence to accommodate accessibility challenges; the remaining participants had time, cost, or travel restrictions that made it difficult to attend in person. Thus, *remote attendance helped individuals solve both accessibility and practical barriers to conference attendance.*

During the main conference:
- 6 remote attendees occupied a Beam individually; 3 of 6 had a dedicated Beam throughout the entire main conference program and 3 shared a Beam with others where they pre-selected the sessions they wanted to attend.
- Two different universities shared a Beam amongst multiple individuals from their institution. This was unexpected but turned into a valuable use case. Three people used one institution’s Beam, and seven people used another institution’s Beam. Students and faculty pre-selected what time they wanted to use the institution’s Beam.

*The sharing of Beams was an effective way to handle telepresence attendance.* We were able to effectively manage this relatively large number of remote attendees using 8 Beams.

Beams were a large focal point at the conference and generated a great deal of attention on social media. Beams were used opportunistically to support the incorporation of two panellists and one presenter who could not travel at the last minute due to a family emergency.

**Commitment:** Remote attendees need to be fully committed to attending the conference and learning how to operate a Beam. Two people cancelled within a week before the conference and four did not show up for their workshop (one faced Internet connectivity issues). Several remote attendees did not complete / show up for the recommended Beam driver training. *We need to invoke a large degree of commitment from the remote attendees, perhaps through a substantial enough registration cost to efficiently manage telepresence resources.*

There also needs to be commitment from those attending the conference in-person. They need to be willing to interact with and help out remote attendees as needed (e.g., elevators). *Introducing the telepresence program at the start of the conference* appears to be an effective way to garner a basic level of commitment from local attendees.

**Network:** Beams operated on a separate Wifi network than the regular attendees. This sufficed most of the time. There were Wifi dead spots in several portions of the hallway that caused Beams to disconnect; this did not seem to be a major hurdle. Hotel staff were responsive to address Wifi issues as they were discovered.

**Personalization:** We dressed Beams with pre-selected items from the attendees so that remote attendees would be more recognizable. This worked extremely well for those who chose to send us items.
Storage: The Beam setup worked best with the Beam docking stations in a dedicated meeting room so that we could monitor their coming and going and change identity/clothing items for different people.

Workshops: Workshop attendance by remote attendees worked well in two instances (one USA-based, one China-based). These individuals were able to interact within the workshop, present work, and engage in discussions and activities. Small scale interaction at workshops is perhaps the sweet spot for Beams.

Large Scale Interactions at Breaks and the Demo/Poster Reception: Two people attended the demo reception and made the experience work for them. They were able to move around, see demos and posters, and network with people. It was difficult for remote attendees to participate in breaks because of the audio landscape and navigation challenges (breaks were crowded and required an elevator ride to get to another floor). Those who were committed found ways to make large scale interactions work. Others realized how hard it would be and did not try.

Viewing and Participating in Talks: Beams needed to park at the front of the room in order to be able to see the slides. It was often hard to navigate to the front with tables and microphones in the way. It was difficult for Beams to get to the microphone to ask questions – session chairs sometimes skipped their questions or were not able to easily accommodate when they wanted to ask questions. Perhaps session chairs need to be trained how to acknowledge questions from Beam participants, just as they might recognize questions from people with mobility challenges.

One person had a last minute family emergency and could not travel to CSCW to present her paper. A colleague showed her slides and the presenter person gave the talk remotely through a Beam—with the permission of the General Chairs. This was experimental given that normally you have to be present at a conference in person to have your work published. This setup worked well and the presenter was able to complete her talk and answer questions. This suggests the potential for offering remote presentation possibilities for restricted cases (e.g., accessibility needs).

Two people attended remotely on panels. While it was beneficial to incorporate them into the sessions from their remote locations, they appeared to be somewhat overlooked during the session and were not able to engage in discussions very well. This suggests that more advanced planning is needed to develop better strategies for having remote attendees as panelists in order to increase their participation.

Navigation: The conference space was large and this made it challenging for the Beams to get to different locations quickly. Having the conference spread across two floors – talks on Floor 2 and break food on Floor 1 – was a major impediment and it meant many remote attendees chose not to attend the break sessions. Larger conference venues will have even more difficulties when considering travel times between rooms for a Beam.

Student Volunteers: Student volunteers need more training than they had in order to know how to help Beams into elevators and how to direct them to locations. We had to liaise with the SV Chairs several times to clarify how the general set of SVs should help Beams out. This suggests additional SV training on telepresence.

We had two SVs dedicated to telepresence and this was extremely valuable. They were busy nearly all of the conference. This seems like a core requirement for the amount of remote attendees that we had.

Backchannel on Skype: Remote attendees, ourselves, and staff from Event Presence participated in a Skype chat as a backchannel. This was used to post technical support requests, help people to know their positioning in the room, etc. The backchannel worked extremely well and was seen as being vital by the remote attendees.